

## Claims:

1. A method of producing a recombinant polypeptide, comprising;  
expressing a glycosylated recombinant polypeptide in the  
5 plastid of a plant cell.
2. A method of producing a recombinant polypeptide comprising;  
expressing in a plant cell a nucleic acid encoding a fusion  
polypeptide which comprises said recombinant polypeptide, an ER  
10 signal sequence and one or more ER-plastid targeting sequences.
3. A method according to claim 2 wherein said plant ER signal  
sequence is from an ER processed plastid polypeptide.
- 15 4. A method according to claim 2 or claim 3 wherein the one or  
more ER-plastid targeting sequences comprise at least 10 contiguous  
amino acids from an ER-processed plastid polypeptide.
5. A method according to claim 4 wherein the at least 10  
20 contiguous amino acids comprise two or more contiguous basic  
residues.
6. A method according to any one of claims 2 to 5 wherein the one  
or more ER-plastid targeting sequences are comprised within an ER-  
25 processed plastid polypeptide.
7. A method according to claim 6 wherein the ER-processed plastid  
polypeptide has a sequence listed in Table 1.
- 30 8. A method according to claim 6 wherein the ER-processed  
plastid-localised polypeptide is a CAH1 polypeptide.
9. A method according to any one of claims 2 to 8 comprising  
cleaving said expressed fusion polypeptide to generate said  
35 recombinant polypeptide.

10. A method according to claim 9 wherein the expressed fusion polypeptide comprises one or more cleavable linker sequences, said recombinant polypeptide being generated by cleavage of said one or more linker sequences.

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11. A method according to claim 10 wherein said one or more linker sequences are cleaved within said plastid by a heterologous endoprotease to generate said recombinant polypeptide.

10 12. A method according to claim 10 wherein said one or more linker sequences are cleaved within said plastid by an endogenous plastid endoprotease to generate said recombinant polypeptide.

15 13. A method according to any one of the preceding claims comprising isolating and/or purifying said recombinant polypeptide from a plastid of said cell.

20 14. A method according to any one of claims 1 to 10 comprising isolating and/or purifying said expressed fusion polypeptide from a plastid of said cell prior to cleavage to generate said recombinant polypeptide.

25 15. A method according to any one of the preceding claims wherein the recombinant polypeptide comprises one or more glycosylation sites.

16. A method according to claim 15 comprising determining the glycosylation of the expressed recombinant polypeptide.

30 17. A method according to any one of the preceding claims wherein said plastid is a chloroplast.

35 18. A nucleic acid construct comprising;  
a nucleotide sequence which encodes an ER signal sequence,  
one or more ER-plastid targeting sequences, and;

one or more restriction endonuclease sites for insertion of a nucleotide coding sequence capable of expressing a recombinant polypeptide fused to said ER signal and ER-plastid targeting sequences.

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19. A nucleic acid construct according to claim 18 comprising;  
a nucleotide coding sequence capable of expressing a recombinant polypeptide fused to said ER signal and ER-plastid targeting sequences,

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said coding sequence being inserted in the one or more restriction endonuclease sites.

20. A nucleic acid construct according to claim 18 or claim 19 wherein the nucleotide sequence further encodes one or more

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cleavable linker sequences,

said recombinant polypeptide being generated by cleavage of said one or more linker sequences.

21. A nucleic acid construct according to any one of claims 18 to 20 wherein said ER signal sequence is from an ER-processed plastid polypeptide.

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22. A nucleic acid construct according to any one of claims 18 to 21 wherein the one or more ER-plastid targeting sequences comprise at least 10 contiguous amino acids from an ER-processed plastid polypeptide.

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23. A nucleic acid construct according to any one of claims 18 to 22 wherein the one or more ER-plastid targeting sequences comprise two or more contiguous basic residues.

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24. A nucleic acid construct according to any one of claims 18 to 23 wherein the ER signal sequence and one or more ER-plastid targeting sequences are comprised within an ER-processed plastid polypeptide sequence.

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25. A nucleic acid construct according to any one of claims 18 to 24 wherein the ER-processed plastid localised polypeptide sequence is a sequence listed in Table 1.
- 5 26. A nucleic acid construct according to any one of claims 18 to 24 wherein the ER-processed plastid-localised polypeptide sequence is a CAH1 polypeptide.
- 10 27. A nucleic acid construct according to any one of claims 18 to 26 wherein said plastid is a chloroplast.
- 15 28. A nucleic acid vector suitable for transformation of a plant cell and comprising a nucleic acid construct according to any one of claims 18 to 27.
29. A host cell comprising a nucleic acid construct according to any one of claims 18 to 27 or a vector according to claim 28.
- 20 30. A host cell according to claim 29 having said nucleic acid construct or vector within its genome.
31. A host cell according to claim 29 or claim 30 which is a plant cell.
- 25 32. A plant cell according to claim 31 which comprises nucleic acid encoding one or more mammalian glycosyltransferases.
- 30 33. A plant cell according to claim 31 or claim 32 which is deficient in one or more plant specific glycosyltransferases.
34. A plant cell according to any one of claims 31 to 33 which is comprised in a plant, a plant part or a plant propagule, or extract or derivative of a plant.

35. A method of producing a cell according to any one of claims 29 to 33 the method comprising incorporating said nucleic acid construct or vector into the cell by means of transformation.

5 36. A method according to claim 35 which comprises combining the nucleic acid with the cell genome nucleic acid such that it is stably incorporated therein.

10 37. A method according to claim 35 or claim 36 which comprises regenerating a plant from one or more transformed cells.

15 38. A method according to claim 37 comprising sexually or asexually propagating or growing off-spring or a descendant of the plant regenerated from said plant cell.

39. A plant comprising a cell according to any one of claims 31 to 33.

20 40. A method of producing a plant according to claim 36, the method comprising incorporating a nucleic acid construct according to any one of claims 18 to 27 into a plant cell and regenerating a plant from said plant cell.

25 41. Use of a nucleic acid according to any one of claims 18 to 27, a vector according to claim 28, a cell according to any one of claims 29 to 33 or a plant according to claim 39 in a method of producing a recombinant polypeptide.